CLAIMS

What is claimed is:

1. An apparatus for converting an analog image signal into a digital image signal, said apparatus comprising:

a pseudo random binary sequence generator for generating a digital dither signal;

a digital-to-analog converter for converting said digital dither signal into an analog dither signal;

a summing device for generating a dithered image signal in response to said analog dither signal and said analog image signal; and

an analog-to-digital converter for converting said dithered image signal into said digital image signal.

2. The apparatus as claimed in claim 1, wherein said summing device is used to add said analog image signal with said analog dither signal.

3. An apparatus for converting an analog image signal into a digital image signal, said apparatus comprising:

a pseudo random binary sequence generator for generating a digital dither signal;

a scrambler for receiving an offset signal and generating a dithered offset signal by scrambling said offset signal with said digital dither signal;

a digital-to-analog converter for converting said dithered

offset signal into an analog dithered offset signal;

a summing device for generating a dithered image signal in response to said analog dithered offset signal and said analog image signal; and

an analog-to-digital converter for converting said dithered image signal into said digital image signal.

4. The apparatus as claimed in claim 3, wherein said summing device is used to add said analog image signal with said analog dithered offset signal.

5. The apparatus as claimed in claim 3, wherein said scrambler is used to scramble at least one least significant bit of said offset signal with said digital dither signal.

6. An apparatus for converting an analog image signal into a digital image signal, said apparatus comprising:

a pseudo random binary sequence generator for generating a digital dither signal;

an adder for receiving an offset signal and generating a dithered offset signal by adding said offset signal with said digital dither signal;

a digital-to-analog converter for converting said dithered offset signal into an analog dithered offset signal;

a summing device for generating a dithered image signal in response to said analog dithered offset signal and said analog image signal; and

an analog-to-digital converter for converting said dithered image signal into said digital image signal.

7. The apparatus as claimed in claim 5, wherein said summing device is used to add said analog image signal with said analog dithered offset signal.

8. The apparatus as claimed in claim 5, wherein said adder is used to add at least one least significant bit of said offset signal with said digital dither signal.

9. A method for converting an analog image signal into a digital image signal, said method comprising the following steps of:

(a) generating a digital dither signal;

(b) converting said digital dither signal into an analog dither signal;

(c) adding said analog image signal with said analog dither signal to generate a dithered image signal; and

(d) converting said dithered image signal into said digital image signal.

10. The method as claimed in claim 9, wherein said digital dither signal is provided with pseudo random binary sequence.

11. A method for converting an analog image signal into a digital image signal, said method comprising the following steps of:

(a) generating a digital dither signal;

(b) scrambling an offset signal with said digital dither signal to generate a dithered offset signal;

(c) converting said dithered offset signal into an analog dithered offset signal;

(d) adding said analog image signal with said analog dithered offset signal to generate a dithered image signal; and

(e) converting said dithered image signal into said digital image signal.

12. The method as claimed in claim 11, wherein said digital dither signal is provided with pseudo random binary sequence.

13. The method as claimed in claim 11, wherein at least one least significant bit of said offset signal is scrambled with said digital dither signal in step (b).

14. A method for converting an analog image signal into a digital image signal, said method comprising the following steps of:

(a) generating a digital dither signal;

(b) adding an offset signal with said digital dither signal to generate a dithered offset signal;

(c) converting said dithered offset signal into an analog dithered offset signal;

(d) adding said analog image signal with said analog dithered offset signal to generate a dithered image signal; and

(e) converting said dithered image signal into said digital

image signal.

15. The method as claimed in claim 14, wherein said digital dither signal is provided with pseudo random binary sequence.

16. The method as claimed in claim 14, wherein at least one least significant bit of said offset signal is added with said digital dither signal in step (b).